Scanning exercise

This exercise tasked us to use a variety of tools to scan a vulnerable website given by the tutor. The tools are commonly known as ‘Internet Protocol suite’ and are readily available or easily installed on Windows and Linux.

For the purpose of this task, I will use a virtualisation of Kali Linux on a Windows 11 laptop and the webpage is https://customersrus.co.uk.

The Internet Protocol suite tools are as follows:

Dig

Traceroute

Nslookup

Whois

Nmap

MTR

Limitations

Due to the nature of the vulnerable website sharing hosts with other webpages, using the PING utility and ICMP scans were not advised as it could cause interference.

Task

Perform basic scans using basic tools such as traceroute (not ICMP version). Then answer the following questions:

- How many hops from your machine to your assigned website?
- Which step causes the biggest delay in the route? What is the average duration of that delay?
- What are the main nameservers for the website?
- Who is the registered contact?
- What is the MX record for the website?
- Where is the website hosted?

Basic scans

Finding the IP address

```
┌──(beaver㉿Ki)-[~]
└─$ host customersrus.co.uk
customersrus.co.uk has address 68.66.247.187
customersrus.co.uk mail is handled by 0 mail.customersrus.co.uk.
```

IP address is 68.66.247.187

1.How many hops from your machine to your assigned website?

```
┌──(beaver㉿Ki)-[/]
└─$ sudo traceroute customersrus.co.uk
traceroute to customersrus.co.uk (68.66.247.187), 30 hops max, 60 byte packets
 1  10.0.2.2 (10.0.2.2)  3.008 ms  2.755 ms  2.604 ms
 2  * * *
 3  10.0.2.2 (10.0.2.2)  307.854 ms  307.713 ms  307.573 ms
```

```
File  Actions  Edit  View  Help
└─$ sudo nmap -sn Pn --tr customersrus.co.uk
[sudo] password for beaver:
Starting Nmap 7.92 ( https://nmap.org ) at 2022-03-23 13:23 GMT
Stats: 0:00:12 elapsed; 0 hosts completed (2 up), 2 undergoing Traceroute
Parallel DNS resolution of 1 host. Timing: About 0.00% done
Nmap scan report for Pn (139.162.17.173)
Host is up (0.00089s latency).
rDNS record for 139.162.17.173: breadfruit.pitcairn.net.pn

TRACEROUTE (using port 80/tcp)
HOP RTT     ADDRESS
1   0.53 ms 10.0.2.2
2   0.90 ms breadfruit.pitcairn.net.pn (139.162.17.173)

Nmap scan report for customersrus.co.uk (68.66.247.187)
Host is up (0.0011s latency).
rDNS record for 68.66.247.187: 68.66.247.187.static.a2webhosting.com

TRACEROUTE (using port 80/tcp)
HOP RTT     ADDRESS
-   Hop 1 is the same as for 139.162.17.173
2   0.40 ms 68.66.247.187.static.a2webhosting.com (68.66.247.187)

Nmap done: 2 IP addresses (2 hosts up) scanned in 15.50 seconds
```

Here, I used options -sn (omits the default port scan), -Pn (avoids discovering the host), and -tr to trace all the hops.

It seems like one of the two hops goes through a VPN server in Singapore.

```
C:\Users\teach>tracert customersrus.co.uk

Tracing route to customersrus.co.uk [68.66.247.187]
over a maximum of 30 hops:

  1     *        *        *     Request timed out.
  2   389 ms   361 ms   361 ms  199.168.115.1
  3   364 ms   364 ms   364 ms  ae5.csr1.Lax1.Servernp.net [66.252.6.36]
  4   362 ms     *      354 ms  be5244.rcr51.b004747-3.lax05.atlas.cogentco.com [38.104.84.133]
  5     *        *      354 ms  be3584.ccr41.lax05.atlas.cogentco.com [154.54.85.229]
  6   362 ms   356 ms   362 ms  be3359.ccr42.lax01.atlas.cogentco.com [154.54.3.69]
  7   367 ms   374 ms     *     be2932.ccr32.phx01.atlas.cogentco.com [154.54.45.161]
  8   376 ms     *      426 ms  be2930.ccr21.elp01.atlas.cogentco.com [154.54.42.78]
  9   392 ms   399 ms   394 ms  be2927.ccr41.iah01.atlas.cogentco.com [154.54.29.221]
 10     *      413 ms   412 ms  be2687.ccr41.atl0[redacted]atlas.cogentco.com [154.54.28.69]
 11   429 ms   427 ms     *     be2112.ccr41.dca01.atlas.cogentco.com [154.54.7.157]
 12   436 ms     *      426 ms  be2806.ccr41.jfk02.atlas.cogentco.com [154.54.40.105]
 13     *      505 ms   508 ms  be2317.ccr41.lon13.atlas.cogentco[redacted]om [154.54.30.186]
 14   517 ms   511 ms   511 ms  be12194.ccr41.ams03.atlas.cogentco.com [154.54.56.94]
 15   514 ms   512 ms     *     be2278.rcr21.b038092-0.ams03.atlas.cogentco.com [130.117.50.250]
 16   516 ms   513 ms     *     euroaccess-ltd.demarc.cogentco.com [149.6.128.82]
 17   502 ms   514 ms   507 ms  v402.R2.NL1.a2webhosting.com [209.124.94.239]
 18   509 ms     *      505 ms  68.66.247.187.static.a2webhosting.com [68.66.247.187]

Trace complete.
```

Tracecert on Windows seems to have 18 hops

```
C:\Users\teach>tracert -d customersrus.co.uk

Tracing route to customersrus.co.uk [68.66.247.187]
over a maximum of 30 hops:

  1     *        *        *     Request timed out.
  2   248 ms   247 ms   249 ms  6[redacted]
  3     *        *        *     Request timed out.
  4     *        *        *     Request timed out.
  5   250 ms   254 ms   251 ms  212.78.92.2
  6   266 ms   263 ms   261 ms  98.158.181.98
  7   256 ms   248 ms   247 ms  87.119.123.65
  8   249 ms   266 ms   275 ms  141.136.106.109
  9     *        *        *     Request timed out.
 10   311 ms   291 ms   296 ms  154.54.57.161
 11   258 ms   254 ms   254 ms  130.117.51.42
 12   257 ms   263 ms   255 ms  130.117.51.14
 13   255 ms   254 ms   265 ms  149.6.128.82
 14   259 ms   260 ms   263 ms  209.124.94.239
 15   277 ms   254 ms   262 ms  68.66.247.187

Trace complete.
```

Using tracert -d prevented the hostname being resolved; there are now 15 hops and much quicker time. It seems the initial hope and time is due to connecting to the VPN server in the UK.

```
C:\Users\teach>tracert -d google.co.uk

Tracing route to google.co.uk [142.250.179.227]
over a maximum of 30 hops:

  1     *        *        *     Request timed out.
  2   253 ms     *      250 ms  6[redacted]
  3     *        *        *     Request timed out.
  4     *        *        *     Request timed out.
  5   252 ms   253 ms   245 ms  212.78.92.2
  6   257 ms     *      253 ms  98.158.181.95
  7   252 ms   253 ms   253 ms  98.158.182.1
  8   244 ms   252 ms   253 ms  209.85.248.229
  9   248 ms     *      253 ms  142.251.54.25
 10     *      253 ms   252 ms  142.250.179.227

Trace complete.
```

For comparison, using tracert -d on Google.co.uk returned 10 hops but still the time is long.

```
┌──(beaver㉿Ki)-[~]
└─$ sudo nmap 68.66.247.187 --tr -f -Pn
[sudo] password for beaver:
Starting Nmap 7.92 ( https://nmap.org ) at 2022-03-23 13:51 GMT
Stats: 0:00:47 elapsed; 0 hosts completed (1 up), 1 undergoing SYN Stealth Scan
SYN Stealth Scan Timing: About 19.50% done; ETC: 13:54 (0:02:45 remaining)
Nmap scan report for 68.66.247.187.static.a2webhosting.com (68.66.247.187)
Host is up (0.30s latency).
All 1000 scanned ports on 68.66.247.187.static.a2webhosting.com (68.66.247.187) are in ignored states.
Not shown: 1000 filtered tcp ports (no-response)

TRACEROUTE (using proto 1/icmp)
HOP RTT       ADDRESS
1   0.81 ms   10.0.2.2
2   ...
3   369.88 ms 64.64.123.1
4   ... 5
6   350.06 ms 212.78.92.0
7   350.80 ms no-ptr.midphase.com (98.158.181.93)
8   367.81 ms et-0-0-31.cr11-lon1.ip4.gtt.net (87.119.123.65)
9   352.23 ms ae1.cr13-lon1.ip4.gtt.net (89.149.142.13)
10  ...
11  361.16 ms be2870.ccr41.lon13.atlas.cogentco.com (154.54.58.173)
12  296.93 ms be12194.ccr41.ams03.atlas.cogentco.com (154.54.56.94)
13  296.39 ms be2278.rcr21.b038092-0.ams03.atlas.cogentco.com (130.117.50.250)
14  327.04 ms euroaccess-ltd.demarc.cogentco.com (149.6.128.82)
15  307.32 ms v402.R2.NL1.a2webhosting.com (209.124.94.239)
16  304.69 ms 68.66.247.187.static.a2webhosting.com (68.66.247.187)

Nmap done: 1 IP address (1 host up) scanned in 219.78 seconds
```

More hops on nmap using fast port scan

```
┌──(beaver㉿Ki)-[~]
└─$ mtr -r --tcp customersrus.co.uk
Start: 2022-03-23T13:36:22+0000
HOST: Ki                          Loss%   Snt   Last   Avg  Best  Wrst StDev
  1.|-- 10.0.2.2                   0.0%    10    1.1   1.4   0.9   2.2   0.4
  2.|-- 68.66.247.187.static.a2we   0.0%    10  373.8 329.3 273.1 373.8  33.6
```

Only two hops using MTR TCP SYN instead of ICMP ECHO requests.

- Which step causes the biggest delay in the route? What is the average duration of that delay?

Hong Kong to France: hop 1 to 2

- What are the main nameservers for the website?

```
┌──(beaver㉿Ki)-[~]
└─$ sudo dig customersrus.co.uk
[sudo] password for beaver:

; <<>> DiG 9.18.0-2-Debian <<>> customersrus.co.uk
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 45569
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
;; QUESTION SECTION:
;customersrus.co.uk.            IN      A

;; ANSWER SECTION:
customersrus.co.uk.     14400   IN      A       68.66.247.187

;; Query time: 563 msec
;; SERVER: 10.132.0.1#53(10.132.0.1) (UDP)
;; WHEN: Wed Mar 23 12:37:06 GMT 2022
;; MSG SIZE  rcvd: 63
```

There seems to be only one IP address

```
┌──(beaver㉿Ki)-[~]
└─$ sudo nslookup customersrus.co.uk
Server:         10.132.0.1
Address:        10.132.0.1#53

Non-authoritative answer:
Name:   customersrus.co.uk
Address: 68.66.247.187
```

- Who is the registered contact?

```
┌──(beaver㉿Ki)-[~]
└─$ whois customersrus.co.uk

    Domain name:
        customersrus.co.uk

    Data validation:
        Nominet was not able to match the registrant's name and/or address ag
ainst a 3rd party source on 21-Oct-2021

    Registrar:
        eNom LLC [Tag = ENOM]
        URL: http://www.enom.com

    Relevant dates:
        Registered on: 21-Oct-2021
        Expiry date:  21-Oct-2022
        Last updated:  21-Oct-2021

    Registration status:
        Registered until expiry date.

    Name servers:
        ns1.a2hosting.com
        ns2.a2hosting.com
        ns3.a2hosting.com
        ns4.a2hosting.com

    WHOIS lookup made at 12:31:21 23-Mar-2022
```

- What is the MX record for the website?

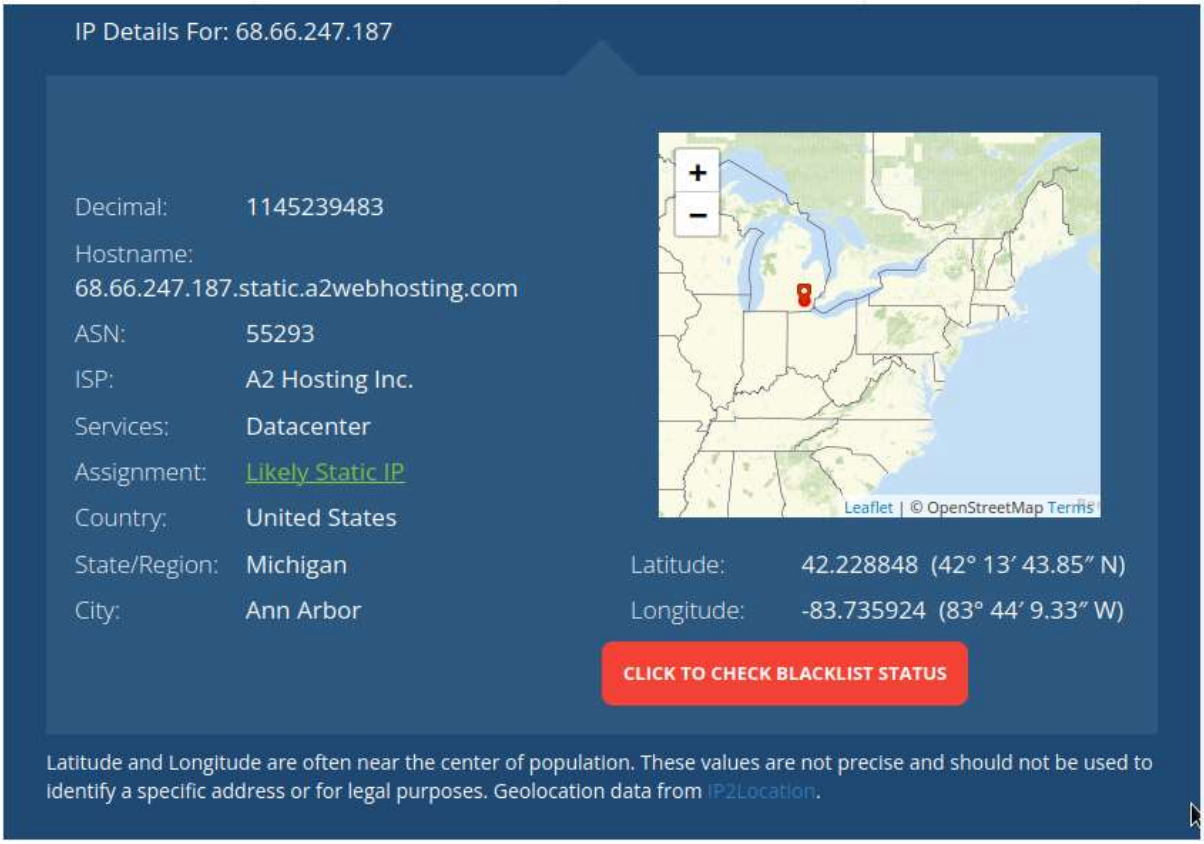
Pref	Hostname	IP Address	TTL	
0	mail.customersrus.co.uk	68.66.247.187 A2 Hosting, Inc. (AS55293)	4 hrs	Blacklist Check SMTP Test

	Test	Result
✖	DMARC Record Published	No DMARC Record found
!	DMARC Policy Not Enabled	DMARC Quarantine/Reject policy not enabled
✔	DNS Record Published	DNS Record found

dns lookup dns check whois lookup spf lookup dns propagation

Reported by **ns2.a2hosting.com** on 3/26/2022 at **7:19:58 AM (UTC -5)**, just for you.

- Where is the website hosted?



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